

CURRICULUM VITAE

1. Full name and date

Nieminen, Miika Tapio
28 May 2025

2. Degrees

Title of Docent, field: Medical Imaging Physics, University of Oulu, Faculty of Medicine, 1 March 2007; *Doctor of Philosophy*, University of Kuopio, Finland, major subject: medical physics, 27 Sept 2002; *Master of Science*, University of Kuopio, Finland, major subject: physics, 31 March 1999; *Bachelor of Science*, University of Kuopio, Finland, major subject: medical physics, 15 Apr 1998

3. Current employment

Professor of Medical Physics, Research Unit of Health Sciences and Technology, University of Oulu, 1 May 2012-present; *Vice-chair*, Research Unit of Health Sciences and Technology, University of Oulu, 2015-present; *Chief Physicist*, Dept. of Diagnostics, Oulu University Hospital, 28 Feb 2007-present

4. Previous work experience

Professor of Medical Technology (part-time), Dept. of Medical Technology, University of Oulu, 1 Sept 2009-31 Dec 2011; *University Researcher* (part-time), Dept. of Radiology, University of Oulu, 1 Jan 2008-31 Aug 2009; *Hospital Physicist*, Dept. of Diagnostic Radiology, Oulu University Hospital, 1 Jan 2004-28 Feb 2007; *Assistant Physicist*, Dept. of Diagnostic Radiology, Oulu University Hospital, 1 Dec 2002-31 Dec 2003; *Research fellow*, Harvard Medical School, Boston, MA, USA, 21 Oct 2002-20 Oct 2003; *Research associate*, Departments of Anatomy and Physics, University of Kuopio 1 Jan 1999-30 Sept 2002

5. Research funding and grants

Funding as independent researcher **totaling approx. 8.1M€**, funding received as co-applicant excluded. Most important funding: Business Finland 436000€ (2025-27), 740500€ (2023-25), 418000€ (2016-18), 342000€ (2018), 51000€ (2020); University of Oulu Infotech Funding, 330000€ (2018-21); Jane and Aatos Erkko foundation 1718000€ (2016-21); Research Council of Finland 400 000€ (2024-28), 330000€ (2023-27), 393000€ (2016-20), 450000€ (2012-16), 299000€ (2009-11), 17 000€ (2002-03); Northern Ostrobothnia Hospital District totaling 927000€ (2004-25). European Regional Development Fund 173000€ (2021-22), Technology Industries of Finland Centennial Foundation, 525000€ (2019-21)

6. Research output

International, peer-reviewed, full-length scientific articles: 182; citations (Scopus, Google Scholar): 5964, 9560; *H-index* (Scopus, Google Scholar): 42, 54

Methods: development and validation of several quantitative MRI methods, development of image reconstruction methods for computed tomography, development of AI and machine learning methods for medical image analysis. *Software*: several in-house softwares for quantitative medical imaging analysis.

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Infrastructures: Teaching and test laboratory for medical imaging (<https://www oulu.fi/mittlab>), experimental computed tomography environment with photon counting detector, experimental setup for measuring optical characteristics of biological tissues *in vivo*.

Patents and inventions: 1. Biopsy needle apparatus, methods of performing sampling therewith and manufacturing thereof (granted patent + 2 innovation disclosures); 2. Apparatus, method and computer program for processing computed tomography (CT) images (granted patent); 3. AI-assisted patient positioning solution (2 innovation disclosures)

7. Research supervision and leadership experience

Research program leader in *Experimental system development*, Flagship of Advanced Mathematics for Sensing, Imaging and Modelling (FAME), Research Council of Finland, 2024-27. Completed supervisions of PhD theses as principal supervisor (16) and as co-supervisor (12). On-going supervision of PhD theses as principal supervisor (7) and as secondary supervisor (5). Supervision of postdoc researchers (16). Leadership: multidisciplinary leadership training in healthcare (30 credits), University of Oulu, 2017. Independent principal investigator and group leader at Research Unit of Health Sciences and Technology, University of Oulu, 2004-present.

8. Teaching merits

Responsible teacher, Radiation and its safe use in medicine (1.5 credits) course, University of Oulu, 2013 – present; *Responsible teacher*, Medical imaging (6 credits) course, University of Oulu, 2012- present; *Responsible organizer*, Research Seminar in Medical imaging, physics and technology, University of Oulu, 2004-present; *Responsible lecturer*, Safe use of radiation (6 credits), Oulu University of Applied Sciences, 2007-20; *Responsible educator for medical physicists*, Oulu University Hospital, 2007-present.

9. Awards and honors

3D-CBCT reconstruction challenge, 3rd place in, IEEE ICASSP-2024 Signal Processing Grand Challenge, 2023; *Prominent Figure in Finnish Healthcare Award*, Medi uutiset independent healthcare news media, 2023; *Excellence in Translational Science Award*, Orthopaedic Research Society and Journal of Orthopaedic Research, 2022, Y Science competition winner, SLUSH Technology and Startup Event, 2021; *Excellence in Basic Science Award*, Orthopaedic Research Society and Journal of Orthopaedic Research, 2020; *GPU hardware grant*, NVIDIA, USA, 2018; *Fellowship Award*, International Society for Magnetic Resonance in Medicine (ISMRM), 2015; *Carl Wegelius Award*, Radiological Society of Finland, 2012; *Distinguished Reviewer* for Magnetic Resonance in Medicine, the official journal of ISMRM 2010, 2011; *Teacher of the year*, Biomedical Engineering subject association, University of Oulu 2011.

10. Other key academic merits

Opponent of doctoral dissertation (10), Pre-examiner of doctoral dissertation (11), evaluation of scientific competence - title of docent (13), evaluation of scientific competence - title of professor (8).

11. Member of international peer evaluation committees of funding applications

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Research Council of Norway 2016-2018, 2022, 2024-25; Swedish Research Council (Vetenskapsrådet), Infrastructure call, Sweden (2010); Wiener Wissenschafts-, Forschungs- und Technologiefonds, Austria (2007); Austrian Science Fund, Austria (2005); The Netherlands Organisation for Health Research and Development 2023, 2017; German Research Foundation, Germany 2023, South-Eastern Norway Regional Health Authority 2021; European Research Council 2017; Israel Science Foundation 2017; Dutch Arthritis Foundation 2012, 2020; Reumafonds Netherlands 2012, 2018; Research Council of Sweden Infrastructure call 2010; Wiener Wissenschafts-, Forschungs- und Technologiefonds 2007; Austrian Science Fund 2005, 2011.

12. Scientific and societal impact

Positions of trust (selected): *Member of governing board*, Finnish Society for Medical Physics and Medical Engineering, 2014-20, 2024 - ; *Doctoral Training committee in Health and Biosciences*, Deputy member, University of Oulu, 2018-19; *Annual Meeting Program Committee member*, International Society for Magnetic Resonance in Medicine (ISMRM), 2017-20; *Scientific committee member* of the ISMRM Workshop on Advanced Musculoskeletal MRI, Hangzhou, China 2017; *Co-chair*, 9th International Workshop on Osteoarthritis Imaging, Oulu, Finland, 2016; *Scientific program committee member*, 8th International Workshop on Osteoarthritis Imaging, Pacific Grove, CA, USA, 2015; *Member of governing committee*, Nordic Chapter of International Society for Magnetic Resonance in Medicine (ISMRM) 2012-2014; *Scientific program committee member*, 5th International Workshop on Osteoarthritis Imaging, Salzburg, Austria, 2011; *Invited Faculty*, ISMRM Workshop on Advances in Musculoskeletal MRI, San Francisco 2009; *Chairman*, Musculoskeletal study group, International Society for Magnetic Resonance in Medicine (ISMRM) 2008 – 09; *Member of governing board*, Radiological Society of Finland 2004-06.

Referee for scientific and scholarly journals and organisations: Over 130 reviewed manuscripts for 27 peer-reviewed journals, Reviewer of conference proceedings for 4 scientific organisations.

Invited lectures abroad (selected): *Invited lecture*, International Cartilage Repair Society (ICRS) Focus Meeting: Imaging and Decision Making, Vienna, 2024; *Invited lecture*, Hospital for Special Surgery, New York, USA, 2022; *Invited lecture* at OARSI World Congress on Osteoarthritis, United Kingdom, 2018; *Keynote lecture* at Opening Ceremony of Vienna Center for Engineering in Medicine, Vienna, Austria, 2017; *Invited lecture* at ISMRM Workshop on Advanced Musculoskeletal MRI, Hangzhou, China 2017; *Keynote lecture* at 8th International Workshop on Osteoarthritis Imaging, Pacific Grove, CA, USA, 2015; *Invited lectures* at educational sessions of the Annual Meeting of ISMRM Seattle 2006, Stockholm 2010, Melbourne 2012, Milan 2014; *Two invited lectures* at the International Cartilage Repair Society (ICRS) Imaging Focus Meeting, Vienna 2012; *Invited lecture* at the ISMRM Workshop on Advances in Musculoskeletal MRI, San Francisco, CA 2009; *Keynote lecture* at the Leeds Annual Day Conference, Leeds, United Kingdom 2009.

13. Other merits (selected)

Member, Software as a Medical Device in Medical Physics Working Group, EFOMP and ESR 2024-25; *Member*, Advisory Board for Hospital Physicist Training of Finnish Universities, 2011- ; *Member*, National Committee of Medical Physics and Technology, Finnish Academy of Science and Letters, 2018-22; *Chairman*, Advisory Board for Hospital Physicist Training of Finnish Universities, 2014-16; *National Member Organization Delegate*, European Federation of Organisations in Medical Physics (EFOMP), 2015-17.